

Title: Western New York Sweet Corn Pheromone Trap Network Survey

Project leader(s): Marion Zuefle

Cooperator(s):

Abstract:

The New York sweet corn pheromone trap network (SCPTN) is an affiliation of extension staff, consultants and farmers, who collaborate to set up and maintain a network of pheromone traps near sweet corn fields throughout New York. In 2006 a survey was conducted to determine the impact of the trap network reports on fresh market sweet corn growers pest management practices. The 2006 survey was developed by Abby Seaman and Curt Petzoldt and administered by the National Agricultural Statistics Service New York Field Office. A similar survey was conducted in 2013 and those results are presented here.

Background and justification:

The SCPTN was started in 1993 with four trapping locations in western NY. It has since grown to 37 locations that include 22 in western and 15 in eastern NY. Pheromone traps for three major sweet corn pests, European corn borer, corn earworm, and fall armyworm are setup and monitored weekly throughout the sweet corn growing season. Cooperators check the 22 traps located in western NY weekly and call or email numbers to Marion Zuefle. Zuefle then collates all trap catches and posts them, along with scouting and threshold information to the [sweet corn pheromone trap network report blog](#), the [PestWatch](#) website. The blog is also linked to from the [Network for Weather and Environmental Awareness](#) (NEWA). Extension colleagues in western New York also include the information in their weekly pest update newsletter. A survey was conducted in 2006 to determine the impact of the SCPTN on fresh market sweet corn growers' pest management practices. The same survey was administered in 2013 with some additional questions on bird damage and a sweet corn scouting smart phone application. The Sweet Corn Pheromone Trap Network (SCPTN) was supported in 2013 by Agriculture and Food Research Initiative Competitive Grant no. 2010-41534-21667 from the USDA National Institute of Food and Agriculture.

Objectives:

- 1) Develop and distribute a survey to sweet corn growers to gauge the impact the SCPTN has on their pest management practices.
- 2) Determine, through the use of the survey, if growers are experiencing economic damage to sweet corn by birds.
- 3) Determine if sweet corn growers and crop consultants are interested in the development of a sweet corn scouting application for smart phones.

Procedures:

- 1) The 2013 survey (Appendix 1) contained many of the same questions as the 2006 survey so that results between the two years could be compared. The survey was conducted

using Qualtrics, Cornell's survey tool. Prior to administration, the survey was submitted to Cornell's Institutional Review Board for approval and received an exemption.

The survey was then made available to sweet corn growers, consultants and extension staff via a link provided in the last two [SCPTN blog](#) posts of the season. In addition requests for participation in the survey were emailed to all blog subscribers and all vegetable extension staff. The survey was also advertised in September 18th issue of [Veg Edge Weekly](#) and the December issue of the [Veg Edge Newsletter](#). A mailing consisting of the 90-hardcopy subscribers to the Veg Edge newsletter was sent out in September to target growers that might not receive the electronic version.

- 2) Six questions on bird damage were added to the survey to determine the extent of bird damage in sweet corn.
- 3) Two additional questions were added to the survey to determine the level of interest from growers and crop consultants in the development of a sweet corn scouting smart phone application.

Results and discussion:

Even though the survey was mailed to 90 individual people, sent via email to the 78 subscribers of the sweet corn blog, and announced twice in the SCPTN blog and the vegetable newsletter only, 52 responses were received. Of the responses received, 38 agreed to participate and filled out the entire survey. In comparison the 2006 survey received 347 positive responses. The difference in responses is primarily due to the use of the National Agricultural Statistics Service in 2006, which identified 633 farms growing sweet corn in New York and the ability in 2006 to follow up with individual phone calls to farms to encourage participation.

In 2013, 96% of farmers that responded were getting the SCPTN report as compared to only 21% in 2006. This difference is most likely due to the difference in farmers surveyed for the two years. In 2006 surveys were sent out to 633 farms known to grow sweet corn, the survey in 2013 was sent out to farms that were already subscribing to the SCPTN blog (via email) and by mail to those receiving the Veg Edge newsletter by mail (which also contains the SCPTN report). Therefore the farms surveyed in 2013 were already biased towards those receiving the SCPTN report.

In 2006 only 4% of respondents that received the trap report received it via the web. There was clearly an opportunity to increase access to the trap network by publicizing its availability on the web. Since 2006 the number of respondents that received the report via the web has increased to 13%.

The percent of respondents that were satisfied with the level of worms in their corn at harvest did not change much from 2006 (86%) to 2013 (88%).

When asked if there would be an impact to their practices if the SCPTN was no longer available a slight increase was seen with 84% saying there would be an impact in 2006 as compared to 87% in 2013. However a difference in what that impact would be was more revealing. In 2006 26% said they would need to spray more and only 15% would get their own traps. This dropped

to only 17% in 2013 that would spray more and increased to 30% that would purchase their own trap.

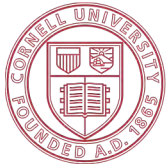
How do you get trap catch information? (Select all that apply)		
	2013	2006
Weekly extension pest update (e.g. VegEdge)	83%	84%
Crop consultant	17%	21%
Sweet corn blog (http://sweetcorn.nysipm.cornell.edu/)	13%	4%
I check my own traps	25%	.
Other	13%	7%
Are you satisfied with the level of worms in your sweet corn at harvest (only those receiving trap catch information)?		
Yes	88%	86%
No	8%	14%
Other	4%	.
If trap catch information became unavailable how would it impact your sweet corn pest management practices (only those receiving trap catch information)?		
It would have no effect	13%	16%
I would need to spray more	17%	26%
I would spend more time scouting	57%	53%
I would get my own traps	30%	15%
I would have more worms in my corn at harvest	35%	19%

Some additional results for the 2013 survey are given below but comparisons with the 2006 survey could not be made.

- 63% of respondents were farmers 8 % consultants 18% extension and 11% other
- Farmers grew between 2-1900 acres of fresh market sweet corn with an average of 130 acres.
- Only 58% of farmers scout their sweet corn fields or have them scouted by someone else
- Only 8% of farmer respondents are organic
- >80% of respondents experience economic loss due to bird damage.
- 65% of farmers who scout their sweet corn want a phone app to help them scout and 75% of consultants want a phone app to help them scout.

These results show that there is opportunity for increased education on the importance of scouting sweet corn. The majority of those that scout sweet corn thought a scouting app for

smart phones would be helpful. The development of such an application may also increase the overall number of growers that scout. Bird damage was of great concern to most growers and with the results of this survey funding has been sought to evaluate new bird control methods in sweet corn.



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2013 Sweet Corn Pheromone Trap Network Survey

Sweet Corn Pheromone Trap Network Survey Consent

The Integrated Pest Management Program of Cornell University coordinates a network of sweet corn pheromone traps for five major sweet corn pests. This information is collected weekly throughout the growing season and made available through newsletters and weekly blog postings. We would like you to take part in a survey of how the Sweet Corn Trap Network has affected your insect management practices in sweet corn. We also want to find out if you have any interest in phone applications for scouting sweet corn and research into preventing bird damage in sweet corn.

It will take 5-10 minutes to complete this voluntary survey. No personal information will be collected for this survey. If you have any questions please contact Marion Zuefle at mez4@cornell.edu or 315-787-2379.

1.

- ☐ I do not wish to participate.
- ☐ I would like to take the survey.

2. Please choose what best describes you:

- ☐ Consultant
- ☐ Extension
- ☐ Farmer
- ☐ Other _____

CONSULTANT/OTHER: Please answer questions 3-9

3. How many acres of sweet corn do you scout?

4. How do you get the trap catch information? (*Select all that apply*)

- ☐ Weekly extension pest update (e.g. VegEdge)
- ☐ Sweet corn blog (<http://sweetcorn.nysipm.cornell.edu/>)
- ☐ I check my own traps
- ☐ Other _____



5. How do you use the trap catch information? (*Select all that apply*)

- ☐ To decide when to scout
- ☐ To inform grower when to spray
- ☐ I don't use trap catch information
- ☐ Other _____

6. How would your business be affected if trap catch data were no longer available?

7. Would you use a smart phone application to help you scout sweet corn?

- ☐ Yes
- ☐ No
- ☐ I don't scout sweet corn

8. What percent of your clients have problems with bird damage in sweet corn?

9. Do you feel additional research on managing bird damage in sweet corn is needed?

- ☐ Yes
- ☐ No

EXTENSION: Please answer questions 9-13

9. How do you get the trap catch information? (*Select all that apply*)

- ☐ Sweet corn blog (<http://sweetcorn.nysipm.cornell.edu/>)
- ☐ I check my own traps
- ☐ Other _____

10. How do you use the trap catch information? (*Select all that apply*)

- ☐ I use the information in newsletters
- ☐ When consulting with farmers
- ☐ I don't use trap catch information
- ☐ Other _____

11. How would your program be affected if trap catch data were no longer available?

12. What percent of your audience have problems with bird damage in sweet corn?

13. Do you feel additional research on managing bird damage in sweet corn is needed?

- ☐ Yes
- ☐ No

FARMERS: Please answer questions 14-32

14. How do you get the trap catch information? *(Select all that apply)*

- ☐ Weekly extension pest update (e.g. VegEdge)
- ☐ Crop consultant
- ☐ Sweet corn blog (<http://sweetcorn.nysipm.cornell.edu/>)
- ☐ I check my own traps
- ☐ Other _____

15. How do you use the trap catch information? *(Select all that apply)*

- ☐ To decide when to scout
- ☐ To decide when to spray
- ☐ I don't use trap catch information
- ☐ Other _____

16. How many acres of fresh market sweet corn do you grow?

17. Are you satisfied with the level of worms in your sweet corn at harvest?

- ☐ Yes
- ☐ No

18. Are your sweet corn fields scouted?

- ☐ No
- ☐ Yes, by me
- ☐ Yes, by my employee
- ☐ Yes, by my consultant

18b. If you have a consultant then does your crop consultant also sell pesticides?

- ☐ Yes
- ☐ No

19. Do you use insecticides (including those approved for organic production) to control worms in your sweet corn?

- ☐ Yes (answer questions 20-22)
- ☐ No (answer questions 23-25)

FARMERS: YES – insecticides used 20-22

20. How do you decide when to spray your sweet corn for European corn borer? *(Select all that apply)*

- ☐ When the corn is at a particular stage
- ☐ When my consultant says it needs to be sprayed
- ☐ When scouting indicates that the field has reached threshold
- ☐ Based on pheromone trap catches
- ☐ Other (Please explain) _____

21. How do you decide when to spray your sweet corn for fall armyworm? *(Select all that apply)*

- ☐ When the corn is at a particular stage
- ☐ When my consultant says it needs to be sprayed
- ☐ When scouting indicates that the field has reached threshold
- ☐ Based on pheromone trap catches
- ☐ Other (Please explain) _____

22. How do you decide when to spray your sweet corn for corn earworm? *(Select all that apply)*

- ☐ When the corn is at a particular stage
- ☐ When my consultant says it needs to be sprayed
- ☐ When scouting indicates that the field has reached threshold
- ☐ Based on pheromone trap catches
- ☐ Other (Please explain) _____

FARMERS: NO – insecticides used 23-25

23. Do you take any action to control worm pests in your sweet corn?

- ☐ Yes
- ☐ No

24. What action do you take? *(Select all that apply)*

- ☐ Keep my soil healthy and in balance so pests are not a problem
- ☐ Plant pollen and nectar sources to encourage native natural enemies
- ☐ Purchase and release natural enemies, if so which enemies? _____
- ☐ Handpick pests, if so what technique do you use? _____
- ☐ Other _____

25. Do you use trap catch information to help with any of these techniques?

- ☐ Yes
- ☐ No

FARMERS: Please answer all remaining questions

26. If trap catch information became unavailable how would it impact your sweet corn pest management practices? *(Select all that apply)*

- ☐ It would have no effect
- ☐ I would need to spray more
- ☐ I would spend more time scouting
- ☐ I would get my own traps
- ☐ I would have more worms in my corn at harvest

27. How much per year do you estimate it would cost to monitor the pest flights yourself?

- ☐ Less than \$100.00
- ☐ \$100-\$500.00
- ☐ More than \$500

28. Would you be interested in the development of a smart phone app (which is a software program that you use on your mobile device) to help you scout your sweet corn?

- ☐ Yes
- ☐ No
- ☐ I don't scout sweet corn

29. Would you use a smart phone app to help scout sweet corn?

- ☐ Yes
- ☐ No
- ☐ I don't scout sweet corn

30. Do you experience economic loss due to bird damage in your sweet corn?

- ☐ Yes
- ☐ No (skip to 31)

30a. On average what percentage of your total loss is due to bird damage?

30b. What month(s) do you experience the most damage? (*Select all that apply*)

- ☐ June
- ☐ July
- ☐ August
- ☐ September

30c. What bird species are causing the most damage? (*Select all that apply*)

- ☐ Red-winged blackbirds
- ☐ Common grackles
- ☐ Crows
- ☐ Don't know
- ☐ Other _____

31. What do you currently use to control bird damage (*Select all that apply*)?

- ☐ Visual (scare eye balloons, Mylar ribbons)
- ☐ Auditory repellents (distress calls, raptor calls, exploders)
- ☐ Chemical deterrents
- ☐ Corn topping (removal of the tassel after pollination)
- ☐ Shooting birds
- ☐ Other _____

32. Would you benefit from research on controlling bird damage in sweet corn?

- ☐ Yes
- ☐ No
- ☐ I don't have bird damage in sweet corn